

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

James A. Hutchison IV

Serial No: 10/034,776

Filed: December 21, 2001

For: ARBITRATED AUDIO COMMUNICATION
WITH REDUCED LATENCY

Art Unit: 2684

Examiner: Angelica Perez

Confirmation No. 9013

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MS Appeal Brief-Patents
Commissioner for Patents
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APPELLANT'S BRIEF

REAL PARTY IN INTEREST

The real party in interest is Qualcomm, Inc. of San Diego, California, the assignee of the above referenced application.

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF CLAIMS

The application under appeal includes pending claims 1 - 39. Claims 1 - 39 stand rejected under 35 USC § 103(a) as unpatentable over certain combinations of references. Claims 1 - 39 are appealed.

STATUS OF AMENDMENTS

The Final Office Action was mailed on June 29, 2007. An After-Final Amendment was filed on August 27, 2007, amending claims 33 and 34 in accordance with 37 CFR § 1.116. The After-Final Amendment was entered into the record (see Advisory Action dated 9/20/2007).

As a result of the above sequence of events, there are no claim amendments outstanding and the pending claims are claims 1 - 39 as set forth in the Appendix.

SUMMARY OF CLAIMED SUBJECT MATTER

In accordance with 37 CFR § 41.37c(1)(v), Appellant provides a brief summary of each independent claim involved in the appeal, where the summary refers to the specification by page and line number and to the drawings by reference number. Appellant notes that the specification citations in this section are provided to identify some portions of the specification related to the particular claims. In the interest of brevity, the summary does not necessarily include all references to all relevant portions of the specification and drawings. Accordingly, omission of any reference to the specification or to the drawings should not be construed in any way as an intent to relinquish claim scope, or as an implication or statement regarding the conformance with 35 U.S.C. § 112. Appellant respectfully submits that the claims should not be construed as being limited to the embodiments cited in this section, and further submits that other embodiments, as well as the Doctrine of Equivalents, may apply in determining claim scope.

In general, all pending claims relate to audio communication in a point-to-multipoint communication system.¹ In a point-to-multipoint communication system, a user can broadcast audio messages to one or more recipients over a communications channel referred to as a broadcast link. Typically, only one user at a time may send audio to other users on the broadcast link.² To permit communication among multiple users, a point-to-multipoint communication system arbitrates user access to the broadcast link so as to restrict its access to only one broadcaster at a time.³

An example of a point-to-multipoint communication system is a push-to-talk (PTT) system in which users communicate with one another as a group using wireless and/or wired communication devices.⁴ Typically, a PTT system relies on a shared communication link, also called a broadcast link or multi-cast link, over which audio communications are received

¹ Applicant's Spec. at Paragraphs [0002] and [0019].

² *Id.* at [0002].

³ *Id.*

⁴ *Id.*

simultaneously by multiple communication devices.⁵ As mentioned above, only one user can transmit information to other users at any given time.⁶ However, all users who participate in the point-to-multiple communication can simultaneously listen to the speaker via the broadcast link.⁷

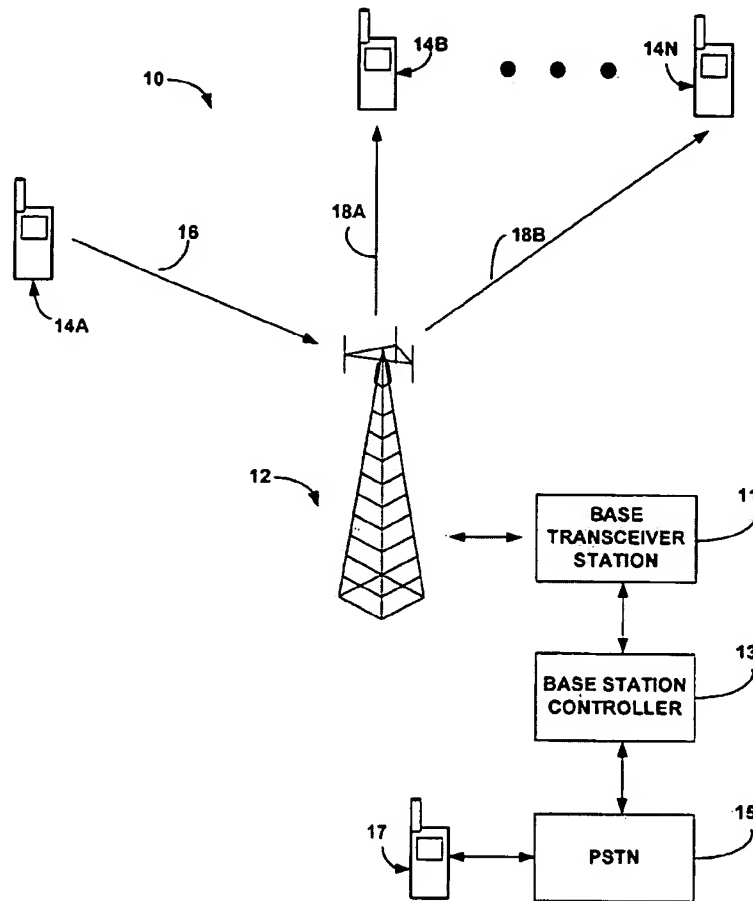


FIG. 1

FIG. 1 of Appellant's disclosure, which is reproduced above, depicts an example point-to-multipoint communication system. As shown in FIG. 1, a wireless base station 12 permits a number of wireless communication devices 14A-14N (hereinafter 14) to communicate with one

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

another and with other devices on networks connected to system 10.⁸ As shown in FIG. 1, using wireless communication device 14A, a participant may send an outgoing communication 16.⁹

Users associated with wireless communication devices 14B-14N receive the communication sent by wireless communication device 14A as incoming communications 18A, 18B, respectively.¹⁰ Base station 12 may include a base transceiver station (BTS) 11 that interacts with a base station controller (BSC) 13 and public switched telephone network (PSTN) 15 to facilitate communications with one or more wired telephones 17 or other wired telephony devices, e.g., computer telephony systems.¹¹

In a point-to-multipoint communication system, a user who desires to communicate with the other users may press a talk button on a communication device.¹² In response, the communication device transmits a request for access to an arbitration controller.¹³ An arbitration controller, which may be integrated with wireless network equipment or a wireless device in the system, limits access to the broadcast link to only one participant at a given time.¹⁴ The arbitration controller processes the request and replies with an indication that access is either granted or denied.¹⁵

If access is granted, the requesting user has sole access to the broadcast link for transmission of audio communications to the other users.¹⁶ In this case, the requesting user may begin to speak, and the communication device begins to transmit the audio communication.¹⁷ When more than one user desires to speak, the arbitration controller arbitrates access to the broadcast link among the participants.¹⁸ In a conventional system, if access is denied, the communication device operated by the requesting user is unable to transmit the audio communication.

⁸ See also Applicant's Spec. at [0025].

⁹ *Id.*

¹⁰ *Id.*

¹¹ Applicant's Spec. at [0028].

¹² Applicant's Spec. at [0003].

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

In known point-to-multipoint systems, a three-step process is used to gain access to a broadcast link: 1) a user sends an access request to an arbitration controller, 2) the user then waits for grant of the access request from an arbitration controller, and 3) the user finally sends audio over a link only after the access request is granted.¹⁹

In sharp contrast to known point-to-multipoint systems, the claimed invention eliminates the need for step 2 in the above three-step process. The claimed invention relates to arbitration techniques that accelerate access to the broadcast link, thereby reducing system latency. Latency, i.e., a delay in the start of communication by a participant, can be disconcerting to participants attempting to conduct a conversation.²⁰ When there is a delay in obtaining link access, the resulting latency can introduce awkward pauses during the course of a conversation carried out over a point-to-multipoint system.²¹

To obtain access to the broadcast link, in accordance with the claimed invention, a user transmits both a request for access and audio representing a desired audio communication to an arbitration controller.²² In sharp contrast to known systems, audio is transmitted before receiving a grant or denied acknowledgement from the access controller.²³ The wireless communication device can transmit the audio with the access request.

If the access request is denied, the audio may be discarded.²⁴ In most instances of typical polite conversation, however, the request will be granted.²⁵ As a result, the audio can be transmitted immediately to the other users, significantly reducing latency in the system.²⁶ In particular, by the time the access request has been granted, the audio has already been transmitted to equipment within the network, such as an arbitration controller.

Upon grant of the access request, the equipment directs transmission of the audio that has already been received, rather than waiting to receive the audio after transmission of a grant acknowledgement. Transmission of the audio may immediately follow the access request.²⁷ In

¹⁹ Applicant's Spec. at [0002].

²⁰ *Id.* at [0021] and [0044].

²¹ *Id.* at [0021] and [0024].

²² *Id.* at [0019].

²³ *Id.* at [0019] and [0023].

²⁴ *Id.* at [0021], [0032] and [0037].

²⁵ *Id.* at [0021].

²⁶ *Id.* at [0021], [0023] and [0030].

²⁷ *Id.* at [0022], [0030] and [0035].

some embodiments, the audio itself may serve as the access request for an arbitration controller, eliminating the need for a separate request to be communicated.²⁸

As a further alternative, detection of the audio by the speaker's wireless communication device may trigger transmission of an access request and the audio to the arbitration controller.²⁹ In either case, by transmitting the audio with the access request, excessive delay can be eliminated between the transmission of the access request and the transmission of the audio.³⁰ Again, it is not necessary to wait for an acknowledgement that the access request has been granted or denied before transmitting the audio communication.

By reducing audio latency, a system and method as described by Appellant's disclosure, and set forth in the pending claims, can promote enhanced quality of service among participants in a point-to-multipoint communication system.³¹ In particular, users can conduct conversations more readily without suffering the awkwardness of extended delays and pauses between audio received from different speakers.³² Arbitration can be performed within wireless communication devices or in wireless network equipment, such as a mobile base station equipment, enabling flexible implementation of arbitration schemes.³³

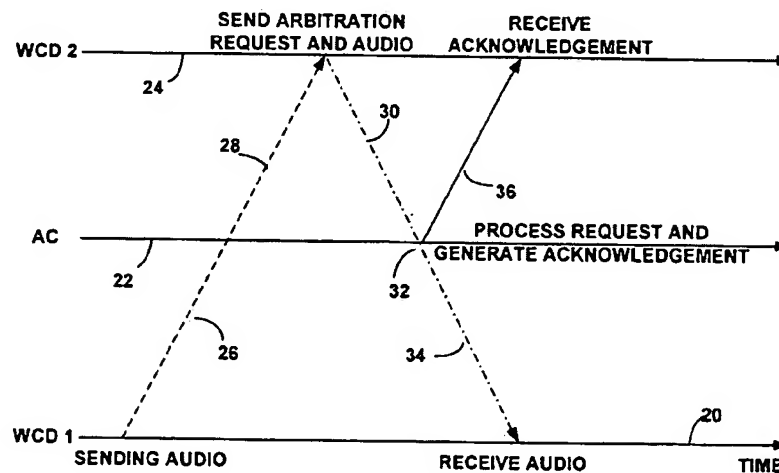


FIG. 2

²⁸ Applicant's Spec. at [0022].

²⁹ Applicant's Spec. at [0023].

³⁰ *Id.*

³¹ Applicant's Spec. at [0024].

³² *Id.*

³³ *Id.*

FIG. 2 of Appellant's disclosure illustrates an example of accelerated arbitration, in accordance with an embodiment of the claimed invention, and is reproduced above.³⁴ FIG. 2 illustrates arbitration by base station 12 in response to a request for access to the broadcast link by a wireless communication device 14. In FIG. 2, line 20 indicates the perspective of a first wireless communication device (WCD 1), line 22 indicates the perspective of an arbitration controller (AC), and line 24 indicates the perspective of a second wireless communication device (WCD 2). Each of lines 20, 22, 24 represents the elapse of time from left to right as arbitration and communication take place within system 10. In FIG. 2, the arbitration controller is implemented in the network. In other embodiments, as shown in FIG. 4, the arbitration controller may be implemented elsewhere, such as within a wireless communication device.

Initially, in the example of FIG. 2, WCD 1 has broadcast priority and is sending an audio communication 26 pursuant to a previous arbitration.³⁵ The arbitration controller directs the audio over the broadcast link to one or more wireless communication devices, including WCD 2 28. When WCD 2 desires access to the broadcast link, it sends not only an access request 30, but also the audio communication 30 ("SEND ARBITRATION REQUEST AND AUDIO").³⁶ The request and audio may be sent simultaneously or in rapid succession.³⁷ In either case, WCD 14 does not wait for an acknowledgement from the arbitration controller (AC) to send the audio.³⁸

In the example of FIG. 2, the arbitration controller processes the request (32) and generates an acknowledgement.³⁹ If the request is granted, the arbitration controller directs the audio from WCD 2 over the broadcast link to other users, including WCD 1 (34).⁴⁰ In addition, the arbitration controller may send an acknowledgement that the request has been granted to WCD 2 (36).⁴¹ Upon receipt of the acknowledgement that the request has been granted, the participant associated with WCD 2 may receive a notification that the access request was successful.⁴²

³⁴ See also Applicant's Spec. at [0033].

³⁵ Applicant's Spec. at [0034].

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ Applicant's Spec. at [0035].

⁴¹ *Id.*

⁴² *Id.*

Consequently, the participant can be certain that the previous audio communication was successfully transmitted over the broadcast link, and may continue with transmission of the remainder of the audio communication.⁴³ However, there is no need to wait for grant of the access request in order to send the audio. Instead, upon grant, the audio that has already been transmitted to the arbitration controller, or other network equipment, is transmitted to other WCDs in the system, such as WCD 1.

In the event the access request is not granted, the arbitration controller sends an unfavorable acknowledgement to WCD 2, and the arbitration controller does not direct the audio from WCD 2 over the broadcast link to other users.⁴⁴ In this case, the audio transmission received from WCD 2 may simply be discarded.⁴⁵ The arbitration controller directs the appropriate network equipment to allocate the broadcast link to another user or leave the broadcast link allocated to an existing user.⁴⁶ The audio may be temporarily buffered by the network equipment, e.g., base station 12, while the arbitration of the access request is processed.⁴⁷ Upon denial of the access request, the arbitration controller may direct that the buffered audio simply be purged.⁴⁸

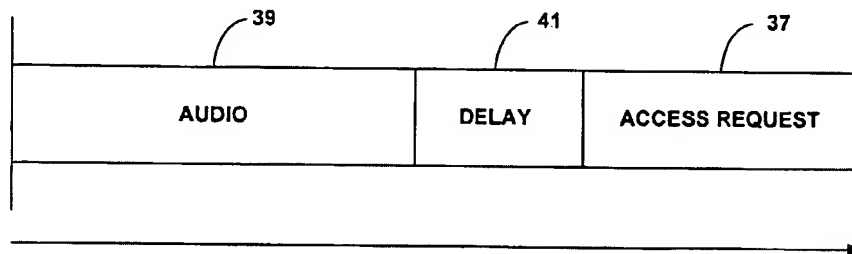


FIG. 3

With reference to FIG. 3 of Appellant's disclosure, reproduced above, a wireless communication device 14 transmits an access request 37 to base station 12 when access to the

⁴³ Applicant's Spec. at [0035].

⁴⁴ Applicant's Spec. at [0037].

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ Applicant's Spec. at [0031].

⁴⁸ Applicant's Spec. at [0037].

broadcast link is desired.⁴⁹ Access request 37 is accompanied by all or part of an audio communication 39 made by the user of the wireless communication device 14.⁵⁰ Hence, wireless communication device 14 transmits the audio with the access request.

As noted in Appellant's disclosure, the audio may follow immediately after the access request 37 or be separated by a slight time delay 41.⁵¹ In addition, in some embodiments, the audio communication itself may serve as the access request.⁵² For example, an arbitration controller may interpret the audio as an access request. In either case, wireless communication device 14 transmits the audio with the access request, and without the delay involved in waiting for an acknowledgement that the access request has been granted.⁵³ Upon receipt of an unfavorable acknowledgement, i.e., that the access request is denied, the audio transmission is terminated.

Independent claim 1 defines a method comprising transmitting a request for access to a broadcast link in a point-to-multipoint communication system, transmitting audio with the access request, and terminating the audio transmission in the event the access request is denied. Claims 2-11 are dependent on claim 1.

Independent claim 12 defines a method comprising receiving a request for access to a broadcast link in a point-to-multipoint communication system, receiving audio before transmission of an indication that the access request is granted and before transmission of an indication that the access request is denied, wherein the audio includes speech, and transmitting the audio via the broadcast link in the event the access request is granted. Claims 13-19 are dependent on claim 12.

Independent claim 20 recites a wireless communication device comprising a wireless transmitter, and a processor that controls the transmitter to transmit a request for access to a broadcast link in a point-to-multipoint communication system, transmit audio with the access request, and terminate the audio transmission in the event the access request is denied. Claims 21-25 are dependent on claim 20.

⁴⁹ See also Applicant's Spec. at [0045].

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*

Independent claim 26 specifies an arbitration controller for a point-to-multipoint communication system. The arbitration controller comprises a processor that receives a request for access to a broadcast link from a wireless communication device in a point-to-multipoint communication system. The processor receives audio from the wireless communication device before transmission of an indication that the access request is granted and before transmission of an indication that the access request is denied. The processor determines whether to grant the access request, and directs transmission of the audio via the broadcast link in the event the access request is granted, wherein the audio includes speech. Claims 27-32 are dependent on claim 26.

Independent claim 33 recites a computer-readable medium carrying instructions to cause a processor in a wireless communication device in a point-to-multipoint communication system to perform a method substantially as set forth in claim 1.

Independent claim 34 recites a computer-readable medium carrying instructions that cause a processor in network equipment in a point-to-multipoint communication system to perform a method substantially as set forth in claim 12.

Independent claim 35 recites a method comprising transmitting a request for access to a broadcast link in a point-to-multipoint communication system from a wireless communication device, receiving audio from a user of the wireless communication device, transmitting the audio from the wireless communication device before receiving an acknowledgement that the access request is granted and before receiving an acknowledgement that the access request is denied, and terminating the audio transmission if a denial of the access request is received. Claim 36 is dependent on claim 35.

Independent claim 37 recites a method comprising transmitting a request for access to a broadcast link in a point-to-multipoint communication network from a wireless communication device to network equipment, receiving audio from a user of the wireless communication device, transmitting the audio from the wireless communication device to the network equipment before the access request is granted and before the access request is denied, and terminating the audio transmission and discarding the transmitted audio if the access request is denied, wherein the audio includes speech.

Independent claim 38 recites a method comprising transmitting an access request from a wireless communication device to network equipment, the access request including a request for access to a broadcast link in a point-to-multipoint communication system, receiving speech from

a user of the wireless communication device, transmitting the speech from the wireless communication device to the network equipment before the wireless communication device receives an acknowledgement from the network equipment that the access request is granted and before the wireless communication device receives an acknowledgement from the network equipment that the access request is denied, and terminating the speech transmission from the wireless communication device to the network equipment in the event the access request is denied.

Independent claim 39 recites a method comprising transmitting a request for access to a broadcast link in a point-to-multipoint communication system, transmitting audio from a wireless communication device before receiving an acknowledgement that the access request is granted and before receiving an acknowledgement that the access request is denied, wherein the audio includes speech, and terminating the audio transmission in the event the access request is denied.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Rejection of Claims 1 – 2, 4 – 11, 14, 16, 20 – 21, 23 – 25, 33, 37 and 39 under 35 USC § 103(a) as being unpatentable over EPO Publication No. 0,321,672 A2 (“Lynk”) in view of UK Patent Application No. 2,336,975 A (“Stevens”), and further in view of “Official Notice” pursuant to MPEP 2144.03 “Reliance on Common Knowledge in the Art or ‘Well Know’ Prior Art”.
2. Rejection of Claims 3, 12, 15, 17 - 19, 22, 26, 28 – 32, 34 – 36 and 38 under 35 USC § 103(a) as being unpatentable over EPO Publication No. 0,321,672 A2 (“Lynk”) in view of UK Patent Application No. 2,336,975 A (“Stevens”), further in view of “Official Notice” pursuant to MPEP 2144.03 “Reliance on Common Knowledge in the Art or ‘Well Know’ Prior Art”, and further in view of U.S. Patent number 5,594,784 (“Velius”).
3. Rejection of Claim 13 under 35 USC § 103(a) as being unpatentable over EPO Publication No. 0,321,672 A2 (“Lynk”) in view of UK Patent Application No. 2,336,975 A (“Stevens”), further in view of “Official Notice” pursuant to MPEP 2144.03 “Reliance on Common Knowledge in the Art or ‘Well Know’ Prior Art”, and further in view of U.S. Patent Publication No. 2007/0,005,954 A1 (“Skemer”).

4. Rejection of Claim 27 under 35 USC § 103(a) as being unpatentable over EPO Publication No. 0,321,672 A2 (“Lynk”) in view of UK Patent Application No. 2,336,975 A (“Stevens”), further in view of “Official Notice” pursuant to MPEP 2144.03 “Reliance on Common Knowledge in the Art or ‘Well Know’ Prior Art”, further in view of U.S. Patent number 5,594,784 (“Velius”) and further in view of U.S. Patent Publication No. 2007/0,005,954 A1 (“Skemer”).

ARGUMENT

Appellant respectfully submits that the Section 103 rejections are made in error and should be reversed. Prima facie obviousness has not been established because: 1) each of the claims recites limitations that are plainly not taught or suggested by the cited references, and 2) the cited references and evidence of record provide no teaching that would have reasonably suggested the proposed combinations of references.

The question of obviousness under Section 103 is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, and (3) the level of skill in the art. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). See also *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. at 1734, 82 USPQ2d at 1391. To be patentable, the differences between the claimed subject matter and the prior art must be such that they render the invention as a whole non-obvious to one of ordinary skill in the art. *KSR*, 127 S. Ct. at 1734, 82 USPQ2d at 1391.

In situations where the Examiner has relied on a combination of references to make out a rejection under Section 103, there must be 1) a suggestion or reason to combine the reference teachings, 2) a reasonable expectation of success, and 3) the references must teach or suggest all of the claim limitations. See MPEP § 2143; *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

In the present application, the Examiner has relied upon various combinations of references and “Official Notice” of certain facts to reject the claims under Section 103. However, as discussed below in greater detail, the teachings of the cited references, taken alone or in combination, as well as the officially noticed facts, fail to teach or suggest all of the

limitations of Appellant's claims. Moreover, the cited references and evidence of record provide no teaching that would have reasonably suggested the proposed combinations of references. Thus, prima facie obviousness has not been established for claims 1 - 39, and therefore, these claims are patentable over the cited references.

Claims 1 – 2, 4 – 11, 14, 16, 20 – 21, 23 – 25, 33, 37 and 39 are patentable over the combination of Lynk, Stevens and the Official Notices; Claims 3, 12, 15, 17 - 19, 22, 26, 28 – 32, 34 – 36 and 38 are patentable over the combination of Lynk, Stevens, Velius and the Official Notices; Claim 13 is patentable over the combination of Lynk, Stevens, Skemer and the Official Notices; and Claim 27 is patentable over the combination of Lynk, Stevens, Velius, Skemer and the Official Notices.

As discussed below, Lynk, Stevens, Velius, Skemer and the Official Notices given in the Final Office Action do not teach or suggest all of limitations recited in claims 1 - 39. Furthermore, the record lacks any teaching that would have reasonably suggested the proposed combination of Lynk and Stevens.

Claims 1 - 11, 20 – 25, 33 -Transmission of Audio with Access Request

Contrary to the requirements of pending claims 1 - 11, 20 - 25 and 33, Lynk, Stevens Velius, Skemer and the Official Notices of record do not teach or suggest transmission of audio with an access request.

Lynk and Stevens both disclose the prior art three-step process that is used to gain access to a broadcast link in a point-to-multipoint system: 1) a user sends a separate access request to an arbitration controller, 2) the user then waits for grant of the access request from an arbitration controller, and 3) the user finally sends audio over a link only after the access request is granted.

Lynk makes no mention of the transmission of audio with an access request, as defined by claims 1 - 11, 20 - 25 and 33. In sharp contrast, Lynk describes the buffering of voice data when a subscriber initiates a transmission by depressing a push-to-talk (PTT) button, followed by delayed transmission of the voice data after the grant of an access request. Likewise, Stevens discloses a mobile radio system in which access requests always precede and are separately transmitted from audio (see, e.g., Stevens at page 6, lines 13 – 33, and at page 8, line 34 – page 9, line 9). Stevens further describes storage of call content when it is determined that a suitable communication path is not available, i.e., after an access request has actually been denied, or

after an access request has been granted to at least one mobile communication unit. According to Stevens, the contents of a call can be stored in a mobile radio unit or in a base station. In each case, however, the call contents are stored when a communication path is not available,⁵⁴ or when an access request to at least one mobile communication unit has been granted.⁵⁵ Stevens indicates that this approach “contrasts with . . . simply refusing to connect a call if the communication path to . . . at least one of the target mobile radio units is not available.”⁵⁶

As mentioned above, Lynk describes the buffering of voice data when a subscriber initiates a transmission by depressing a push-to-talk (PTT) button, followed by delayed transmission of the voice data only upon receipt of a grant. For example, Lynk states:

“PTT starts voice buffering and initiates a request for channel (103). Some time after receiving the request (104), the central controller finds an available channel, assigns it to the call, and sends a grant message (105) to the requesting unit. The delay may be longer than the time for which the subscriber speaks, as shown here. The requesting unit receives the grant (106) and begins transmission of reproduced voice from the buffer (107).”⁵⁷

Hence, Lynk does not contemplate transmission of audio with an access request, as required by Appellant’s claims 1 - 11, 20 - 25 and 33.

According to Lynk, voice buffering permits a subscriber to transmit an access request and “immediately begin to speak without waiting to receive permission to access the channel.”⁵⁸ In particular, a subscriber unit “locally records the [voice] information to be transmitted.”⁵⁹ The subscriber unit transmits the recorded voice information only “upon being assigned a channel.”⁶⁰

FIG. 4 of Lynk, reproduced below, very clearly illustrates the process described by Lynk in terms of transmitting a request R (103), locally buffering voice (“Calling Truck 1”) (102),

⁵⁴ Abstract; page 2, lines 19-20 (“if a suitable communication path is not available, then storing the contents of said call as a message for later transmission”); page 2, lines 31-35 (“means to store the contents of said call as a message for later transmission to those mobile radio units for which it is determined that no suitable communication path is available”); page 3, lines 1-10 (“it is checked if there is a suitable communication path from the caller to the target mobile radio unit . . . If a suitable communication path is not available, the contents of the call are stored for future transmission”).

⁵⁵ Page 8, line 34, to page 9, line 9.

⁵⁶ Page 3, line 36, to page 4, line 3.

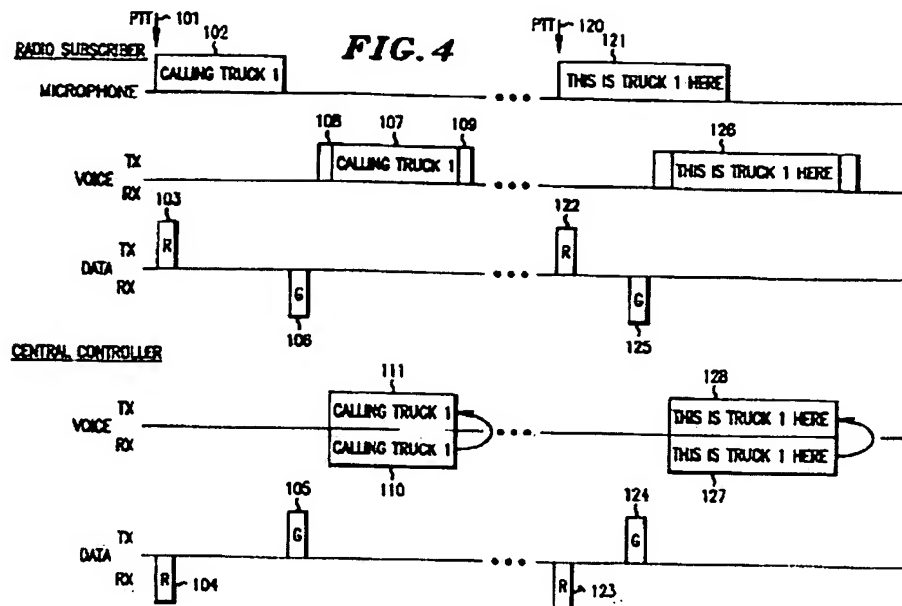
⁵⁷ Col. 6, lines 46-54.

⁵⁸ Col. 3, lines 45-47.

⁵⁹ Col. 3, lines 47-48.

⁶⁰ Col. 3, lines 48-49.

waiting for a grant G (106), and only then transmitting the buffered voice ("Calling Truck 1") (107).



As plainly demonstrated by Lynk's FIG. 4, Lynk does not teach or suggest the transmission of audio with an access request. In contrast, Lynk describes the buffering of voice data when a subscriber initiates a transmission by depressing a push-to-talk (PTT) button, followed by delayed transmission of the voice data after the grant G of an access request R.

In summary, Lynk does not teach or suggest transmission of audio with an access request, but rather buffering of voice data until an access request is successfully negotiated. This can result in undesirable latency, and is fundamentally different from the invention recited in claims 1 - 11, 20 - 25 and 33.

The Stevens reference provides no additional teaching that would have suggested modification of the Lynk system to provide transmission or reception of audio with an audio request, as claimed. In particular, Stevens makes no mention of the transmission of audio with an access request, as required by claims 1-11, 20-33, 35 and 36.

Stevens describes a mobile radio system in which the contents of a call are stored when a suitable communication path for a target mobile radio unit is not available. The call contents are stored as a message for later transmission to the target mobile radio unit when a communication path becomes available, i.e., after an access request is transmitted and then granted. According to Stevens, the contents of a call can be stored in a mobile radio unit or in a base station. In each

case, however, the call contents are stored when a communication path is not available. In one embodiment, call contents are stored if access to a communication path to at least one of a plurality of mobile radio units is granted.⁶¹ In this case, however, Stevens still does not describe the transmission of the call contents with an access request.

Stevens describes a method comprising “attempting a call to at least one target mobile radio unit . . . and if a suitable communication path is not available, then storing the contents of said call as a message for later transmission.”⁶² Consistent with this method, Stevens describes a “means to store the contents of said call as a message for later transmission to those mobile radio units for which it is determined that no suitable communication path is available.”⁶³

Stevens further states that “it is checked if there is a suitable communication path from the caller to the target mobile radio unit,” and “[i]f a suitable communication path is not available, the contents of the call are stored for future transmission.”⁶⁴ Stevens indicates that this approach “contrasts with . . . simply refusing to connect a call if the communication path to . . . at least one of the target mobile radio units is not available.”⁶⁵

According to Stevens, by storing call contents when a communication path is not available, “a group voice call to plural mobile radio units . . . will go ahead without having to wait for suitable radio channels to be available for each of the target mobile radio units.”⁶⁶ Hence, unavailability of a communication path to one of the plural radio units does not prevent communication with the other radio units. Instead, the call proceeds for available radio units, while the call contents are stored for later transmission to the unavailable radio unit(s). In this manner, “all the locatable units will eventually receive the call.”⁶⁷ In particular, Stevens refers to a series of later transmission attempts by which the call contents may be received.⁶⁸ On the other

⁶¹ Page 8, line 34, to Page 9, line 9.

⁶² Page 2, lines 13-22.

⁶³ Page 2, lines 31-35.

⁶⁴ Page, 3, lines 1-10.

⁶⁵ Page 3, line 36, to page 4, line 3.

⁶⁶ Page 4, lines 5-10.

⁶⁷ Page 4, lines 5-10.

⁶⁸ Page 4, lines 30-33.

hand, if a communication path is available, as indicated by the grant of an access request, Stevens indicates that the call proceeds in a normal manner.⁶⁹

Stevens further indicates that, when a communication path is not available, the call contents may be stored in a base station or mobile radio unit, as described above. Stevens (like Lynk) describes the buffering of a call in a “storage means” in a mobile radio unit, followed by transmission of the buffered call when a suitable communication path is available. For example, Stevens states that the storage means may “act as a buffer to store part or all of a message even when suitable communication paths are available and a call has been granted to one or more of the target mobile units.”⁷⁰ In this case, a call must be granted for at least one target mobile unit in order to store the message for other target mobile units.⁷¹

Hence, Stevens describes (1) the storage of a call when a communication path is not available, (2) the local buffering of a call in a mobile radio unit for transmission until a suitable communication path becomes available, and (3) the buffering of a call in a mobile radio unit or elsewhere for mobile units when a call has been granted to at least one other mobile unit. In no instance, however, does Stevens suggest transmission of audio with a request for access, as required by claims 1 - 11, 20 - 25 and 33.

In the Final Office Action, the Examiner stated that Stevens, at page 3, lines 25 - 35 and page 4, lines 5 - 10, describes that audio is transmitted with the access request. The Examiner has misinterpreted the Stevens reference in this regard. As discussed above, Stevens does not provide such a teaching.

Velius and Skemer make absolutely no mention or suggestion of audio transmission with an access request in a point-to-multipoint system, and are therefore not relied upon in the Final Office Action as teaching this claim feature.

In view of the lack of any teachings in the record that disclose or suggest the transmission audio with an access request, the rejections of claims 1 - 11, 20 - 25 and 33 are improper and should be reversed.

⁶⁹ Page 3, lines 25-28 (“Where a suitable communication path . . . is available the call most preferably proceeds as normal”).

⁷⁰ Page 8, line 34, to Page 9, line 9.

⁷¹ Page 8, line 34, to Page 9, line 3.

Claims 3, 4, 22, 23, 35 - 39 - Audio Transmission Before/Without Grant

Lynk, Stevens Velius, Skemer and the Official Notices of record fail to disclose or suggest transmitting audio before or without receiving an acknowledgement that an access request is granted, as set forth in claims 3 and 4. The cited references and Official Notices also fail disclose or suggest transmitting audio from a wireless communication device before or without receiving an acknowledgement that an access request is granted, as set forth in claims 22, 23, 35 - 39.

As discussed in above argument, Lynk stores voice data pending the outcome of an access request, and then retrieves the voice data from memory for transmission if the access request is granted. In particular, Lynk describes the buffering of voice data when a subscriber initiates a transmission by depressing a push-to-talk (PTT) button, followed by delayed transmission of the voice data upon receipt of a grant.

Lynk requires the grant of an access request before audio is transmitted and, in that case, the audio includes buffered audio. Lynk specifically states that the “buffer will hold the recorded voice until grant of the channel; then it will reproduce the voice information.”⁷² This passage appears to be directly contrary to the requirements of claim 3, 4, 22, 23, 35 - 39, which recite that audio is transmitted without or before an access request is granted.

In a passage cited by the Examiner⁷³, Lynk refers to the reproduction of voice data from a buffer as further speech continues to fill the buffer. This passage appears to be wholly irrelevant to the requirements set forth in claims 3, 4, 22, 23, 35 - 39. In particular, the filling of a local buffer with speech data per Lynk provides no teaching concerning the relationship between audio transmission and the grant of access request.

Stevens likewise does not suggest transmission of audio before or without an access request grant. As discussed in the previous argument above, Stevens describes storage of call contents when a suitable communication path is not available, and plainly does not teach or suggest audio transmission without having first received a channel grant. See, e.g., Stevens at page 2, line 13 – page 3, line 24; page 6, lines 13 – 33; and page 8, line 34 – page 9, line 9.

⁷² Col. 5, lines 48-50.

⁷³ Col. 5, lines 41-44.

In the Final Office Action the Examiner additionally pointed to Velius at col. 7, lines 10 - 16 and col. 8, lines 5 - 10 as teaching the requirements of claims 3, 22, 35 -36 and 38. Applicant respectfully submits that this reliance on Velius is misplaced. In sharp contrast to the claims 3, 22, 35 - 36 and 38, Velius discloses a voice-command call-handling system. Velius makes absolutely no mention of a point-to-multipoint communication system, nor the act of requesting access to a broadcast link in a point-to-multipoint communication system.

More importantly, Velius provides no teaching or suggestion of transmitting audio before receiving an acknowledgement that a request for access to a broadcast link is granted or denied. Velius does not even teach or suggest the grant or denial of a request for access to a point-to-multipoint network. Rather, Velius describes voice-command initiation of calls. In the passages cited by the Examiner, Velius merely describes initiating a call with a voice utterance, and determining whether callers are authorized to make a call. At column 7, lines 10-16, for example, Velius states that a caller utters a call recipient's name or a series of digits to initiate a call. At column 8, lines 5-10, Velius describes a caller authorization process in which caller voices may be analyzed (by "voice-print" matching) to determine whether a user is authorized to use the telephony system for communication, not to control access to a broadcast link. These passages having nothing to do with transmitting audio before or without receiving an acknowledgement that an access request has been granted in a point-to-multipoint system, as required by claims 3, 4, 22, 23, 35 - 39.

Skemer make absolutely no mention or suggestion of audio transmission prior to receiving a acknowledgement of a granted or denied access request, and is therefore not relied upon in the Final Office Action as teaching this claim feature.

In view of the lack of any teachings in the record that disclose or suggest the transmission of audio prior to or without a granted access request, the rejections of claims 3, 4, 22, 23, 35 - 39 are improper and should be reversed.

Claims 12 - 19, 26 - 32 and 34 - Audio Reception Before Access Grant or Denial

Contrary to the requirements of claims 12 - 19, 26 - 32 and 34, Lynk, Stevens, Velius, Skemer and the Official Notices of record do not teach or suggest the reception of audio prior to receiving an indication that an access request is granted and before transmission of an indication that the access request is denied. Claims 12 - 19 and 34 require "receiving audio before

transmission of an indication that the access request is granted and before transmission of an indication that the access request is denied....” Claims 26 – 32 each require an arbitration controller comprising a processor that “receives audio from the wireless communication device before transmission of an indication that the access request is granted and before transmission of an indication that the access request is denied, the processor determining whether to grant the access request....”

The Final Office Action, as well as all prior Office communications of record, do not specifically address above features included in claims 12 - 19, 26 - 32 and 34. Indeed, the Final Office Action entirely fails to explain where such features are taught or suggested in the prior art. Instead, the Final Office Action lumps the rejections of independent claims 12, 26 and 34 with the rejections of fourteen other claims at paragraph 8. The Final Office Action as a whole addresses only the acts of “transmitting” and “sending” audio before receiving an access request acknowledgement, but never addresses “receiving” audio before grant or denial of an access request, as required by claims 12 - 19, 26 - 32 and 34. The act of transmitting audio prior to the acknowledgement of an access request does not explicitly or implicitly include the act of receiving audio, as recited in claims 12 - 19, 26 - 32 and 34. Thus, the Final Office Action is deficient in its rejection of claims 12 - 19, 26 - 32 and 34.

Lynk, Stevens and the Official Notices plainly do not teach or suggest receiving audio on a channel before the transmission of an access request acknowledgement.

Velius and Skemer make absolutely no mention or suggestion of audio reception prior to receiving an indication that an access request is granted and before transmission of an indication that the access request is denied.

In view of the lack of any teachings in the record that disclose or suggest the reception of audio prior to a granted or denied access request, the rejections of claims 3, 4, 22, 23 and 35 - 39 are improper and should be reversed.

Claims 1-11, 20-25, 33, 35 and 36 – 39 - Termination of Audio Transmission Upon Denial

Lynk, Stevens Velius, Skemer and the Official Notice provide no teaching that would have suggested termination of an audio transmission in the event an access request is denied, as set forth in claims 1-11, 20-25, 33, 35 and 36 - 39.

As discussed above Lynk, Stevens, Velius and Skemer do not contemplate transmission of audio with an access request, nor transmission of audio before an access request is granted or denied. Accordingly, in the cited prior art systems there is no audio transmission to terminate upon receiving an access denial.

In the Final Office, the Examiner took Official Notice that it is well known in the art to terminate an audio transmission in the event of an access request being denied. However, the Official Notice improperly relies on the teachings of Lynk and Stevens, which plainly do not teach or suggest such features. In the Final Office Action, the Examiner pointed generally to Lynk and specifically to Stevens at page 3, line 36 – page 4, as support for the Official Notice. However, the cited passage does not teach or suggest the features of claims 1-11, 20-25, 33, 35 and 36 – 39, nor does it provide proper support for the Official Notice. At page 3, line 36 – page 4, line 3, Stevens states:

“The present invention contrasts with storing a request to connect, as occurs when calls are queued in a mobile radio system, or simply refusing to connect a call if the communication path to the or at least one of the target mobile radio units is not available.”

The cited passage does not explicitly or implicitly indicate anything in regard to the termination of audio transmission when an access request is denied. Thus, the Examiner’s Official Notice is unsupported by the cited passage from the Stevens reference.

Furthermore, Stevens and Lynk do not refer to terminating an audio transmission upon denial of an access request. Instead, both references describe the prior art technique of sending nothing at all if a communication path is not available. Logically, it is not possible to terminate an audio transmission that has never even commenced. The teachings of Lynk and Stevens, particularly the cited passage of Stevens, cannot be reasonably construed as a basis for the Official Notice, nor can they be reasonably construed to meet the requirements of Applicant’s claims concerning termination of an audio transmission upon denial of an access request.

Moreover, the actual technique described by Stevens does not involve termination, but rather retention, of call contents for later transmission when a communication path becomes available. In discussing the prior art technique of refusing connection and disclosing a technique in which a call is stored rather than terminated, Stevens teaches away from termination of an

audio transmission. Stevens, in particular, discloses storage and retention of call content, not termination, when an access request is denied.

In the Stevens system, the stored call content is retained until a suitable communication path becomes available. Thus, the approach described by Stevens represents virtually the opposite of that specified by claims 1-11, 20-25, 33, 35 and 36. Rather than terminating the transmission of a call when an access request is denied, Stevens stores the call contents for later transmission, thereby preserving the call.

In view of the lack of any prior art teachings that would support the Official Notice or have suggested or disclosed the termination of transmitted audio upon denial of an access request, the rejections of claims 1-11, 20-25, 33, 35 and 36 are improper and should be reversed.

Claims 5, 17, 24, 30, and 36 - Audio Transmission Serves as Access Request

Claims 5, 17, 24, 30, and 36 specify that at least a portion of the audio transmission serves as, or is interpreted as, the access request. Claim 30, for example, specifies that the processor of the arbitration controller of claim 26 interprets at least a portion of the audio transmission as the access request. Lynk, Stevens, Velius and Skemer do not make any mention of such a feature.

In the Final Office Action, the Examiner pointed to page 4, lines 5 -10 of Stevens as teaching the requirements of claims 5, 17, 24 and 36. Claim 30 is not addressed by the Final Office Action. However, the cited passage does not teach or suggest the features of claims 5, 17, 24, 30 and 36. At page 4, lines 5 -10, Stevens states:

“[A]t least in its preferred embodiments, a group voice call to plural mobile radio unit in several coverage cells will go ahead without having to wait for suitable radio channels to be available for each of the target mobile radio units and yet all the locatable unit will eventually receive the call.”

Appellant respectfully submits that the Examiner’s comparison of the cited teachings of Stevens to the requirements of the above claims is misplaced. The cited passage does not explicitly or implicitly indicate anything in regard to the use of transmitted audio as an access request, as is required by claims 5, 17, 24, 30 and 36.

In view of the lack of any teachings that would have disclosed or suggested the use of audio as an access request, the rejections of claims 5, 17, 24, 30 and 36 are improper and should be reversed.

Claims 9, 10, 18, 19, 31 - Access Denial from Wireless Communication Device

Claim 9 requires receipt of denial of an access request from a wireless communication device. Claim 10 specifies that an access request denial is generated within a wireless communication device that presently has access to a broadcast link. Claim 18 requires transmitting an access request to a wireless communication device and receiving an indication that the access request is denied from the wireless communication device. Claim 19 recites transmitting an access request to a wireless communication device that presently has access to the broadcast link. Claim 31 indicates that a processor that receives a request for access to a broadcast link from a wireless communication device and that also determines whether to grant an access request, where the processor resides within a wireless communication device.

In the Final Office Action, the Examiner pointed to Stevens, at page 3, line 36 – page 4, line 3 as teaching the requirements of claims 9 and 18. However, the cited passage does not teach or suggest the features of claims 9 and 18. At page 3, line 36 – page 4, line 3, Stevens states:

“The present invention contrasts with storing a request to connect, as occurs when calls are queued in a mobile radio system, or simply refusing to connect a call if the communication path to the or at least one of the target mobile radio units is not available.”

The cited passage does not explicitly or implicitly indicate anything in regard to the processing of an access request by a wireless communication device, or the transmission of an access request to wireless communication device, as is required by claims 9 and 18, respectively.

In the Final Office Action, the Examiner pointed to Lynk, at Col. 7, lines 49-52, as teaching the requirements of claims 10 and 19. However, the cited passage seems to be irrelevant. At col. 7, lines 49-52, Lynk states:

“If there is a busy signal or no answer after a specified number of rings, the [central] controller notifies the radio subscriber on the control channel.”

The cited passage does not seem to indicate anything in regard to the processing of an access request by a wireless communication device, or the transmission of an access request to wireless communication device. In sharp contrast to the invention, the cited passage teaches that the access request is transmitted and processed by Lynk's central controller 9 (see Lynk, FIG. 2), which is located in the network infrastructure, not a wireless communication device.

In the Final Office Action, the Examiner pointed to Lynk, at col. 5, line 20 - 24 as teaching the requirements of claims 31. However, the cited passage does not teach or suggest the features of claim 31. At col. 5, line 20 - 24, Lynk states:

"To initiate a transmission, the subscriber depresses a push-to-talk (PTT) switch 33, which causes the trunked controller 35 of the radio to key the transmitter and to send a channel request to the central trunked controller."

The cited passage does not seem to indicate anything in regard to receiving an access request from a wireless device or processing of the access request to determine whether to grant it, as required by claim 31.

In view of the above differences, the rejections of claims 9, 10, 18, 19 and 31 are improper and should be reversed.

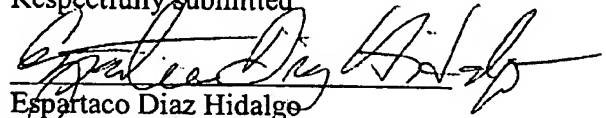
The Record Fails to Establish a Proper Suggestion or Reason for the Proposed Combinations of References

The record in this application does not evidence a proper suggestion, motivation or reason for making the combination of Lynk and Stevens. For a combination of references to be proper, there must be credible reason for in the record to make the proposed. The Final OA at pages 6 and 11 states that one of ordinary skill would combine Lynk and Stevens "in order to allow a larger number of units to be served, as taught by Steven (sic)". There is absolutely no support for this assertion. Nowhere does Stevens teach, suggest or even mention the desirability of serving a larger number of units, either implicitly or explicitly. The above-quoted motivation is also entirely absent from the teachings and suggestions of Lynk and the record is entirely devoid of any other factual support for the putative reason to combine Lynk and Stevens. Thus, the rejections under Section 103 are improper and should be reversed.

Conclusion

For at least the foregoing reasons, prima facie obviousness has not been established for claims 1 - 39, and thus, these claims are patentable over the cited references and the rejections under Section 103 should be reversed.

Respectfully submitted



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CLAIMS APPENDIX

1. A method comprising:
transmitting a request for access to a broadcast link in a point-to-multipoint communication system;
transmitting audio with the access request, wherein the audio includes speech; and
terminating the audio transmission in the event the access request is denied.
2. The method of claim 1, wherein transmitting audio includes transmitting the audio immediately following transmission of the access request.
3. The method of claim 1, wherein transmitting audio includes transmitting the audio before receiving an acknowledgement that the access request is granted and before receiving an acknowledgement that the access request is denied.
4. The method of claim 1, wherein transmitting audio includes transmitting the audio without receiving an acknowledgement that the access request is granted and before receiving an acknowledgement that the access request is denied.
5. The method of claim 1, wherein at least a portion of the audio transmission serves as the access request.
6. The method of claim 1, further comprising receiving an acknowledgement that the access request is granted during transmission of the audio.
7. The method of claim 1, further comprising receiving the denial of the access request from an arbitration controller.
8. The method of claim 1, further comprising transmitting the audio to the broadcast link via wireless network equipment.

9. The method of claim 1, further comprising receiving the denial of the access request from a wireless communication device in the system via a wireless base station.
10. The method of claim 1, further comprising generating the denial of the access request within a wireless communication device that presently has access to the broadcast link.
11. The method of claim 1, further comprising transmitting the access request in response to actuation of a push-to-talk input medium associated with a wireless communication device.
12. A method comprising:
 - receiving a request for access to a broadcast link in a point-to-multipoint communication system;
 - receiving audio before transmission of an indication that the access request is granted and before transmission of an indication that the access request is denied, wherein the audio includes speech; and
 - transmitting the audio via the broadcast link in the event the access request is granted.
13. The method of claim 12, further comprising discarding the audio in the event the access request is denied.
14. The method of claim 12, wherein receiving audio includes receiving the audio immediately following transmission of the access request.
15. The method of claim 12, further comprising transmitting the indication that the access request is granted after receiving the audio.
16. The method of claim 12, further comprising transmitting the indication that the access request is denied after receiving the audio.
17. The method of claim 12, further comprising interpreting at least a portion of the audio transmission as the access request.

18. The method of claim 12, further comprising:
transmitting the access request to a wireless communication device in the system; and
receiving the indication that the access request is denied from the wireless communication device.
19. The method of claim 18, wherein transmitting the access request includes transmitting the access request to a wireless communication device that presently has access to the broadcast link.
20. A wireless communication device comprising:
a wireless transmitter; and
a processor that controls the transmitter to transmit a request for access to a broadcast link in a point-to-multipoint communication system, transmit audio with the access request, and terminate the audio transmission in the event the access request is denied, wherein the audio includes speech.
21. The device of claim 20, wherein the processor controls the transmitter to transmit the audio immediately following transmission of the access request.
22. The device of claim 20, wherein the processor controls the transmitter to transmit the audio before receiving an acknowledgement that the access request is granted and before receiving an acknowledgement that the access request is denied.
23. The device of claim 20, wherein the processor controls the transmitter to transmit the audio without receiving an acknowledgement that the access request is granted and before receiving an acknowledgement that the access request is denied.
24. The device of claim 20, wherein at least a portion of the audio transmission serves as the access request.

25. The device of claim 20, wherein the transmitter transmits the audio to the broadcast link via wireless network equipment.

26. An arbitration controller for a point-to-multipoint communication system, the arbitration controller comprising a processor that receives a request for access to a broadcast link from a wireless communication device in a point-to-multipoint communication system, wherein the processor receives audio from the wireless communication device before transmission of an indication that the access request is granted and before transmission of an indication that the access request is denied, the processor determining whether to grant the access request, and directing transmission of the audio via the broadcast link in the event the access request is granted, wherein the audio includes speech.

27. The device of claim 26, wherein the processor directs discarding of the audio in the event the access request is denied.

28. The device of claim 26, wherein the processor directs transmission of an indication that the access request is granted or denied.

29. The device of claim 26, wherein the transmitter transmits an indication that the access request is granted or denied.

30. The device of claim 26, wherein the processor interprets at least a portion of the audio transmission as the access request.

31. The device of claim 26, wherein the processor resides within a wireless communication device in the point-to-multipoint communication system.

32. The device of claim 26, wherein the processor resides within a network server in a wide area network associated with network equipment in the point-to-multipoint communication system.

33. A computer-readable storage medium comprising processor-executable instructions that cause a processor in a wireless communication device in a point-to-multipoint communication system to:

transmit a request for access to a broadcast link in a point-to-multipoint communication system;

transmit audio with the access request, wherein the audio includes speech; and
terminate the audio transmission in the event the access request is denied.

34. A computer-readable storage medium comprising processor-executable instructions that cause a processor in network equipment in a point-to-multipoint communication system to:

receive a request for access to a broadcast link in the point-to-multipoint communication system;

receive audio before transmission of an indication that the access request is granted and before transmission of an indication that the access request is denied, wherein the audio includes speech; and

direct transmission of the audio via the broadcast link in the event the access request is granted.

35. A method comprising:

transmitting a request for access to a broadcast link in a point-to-multipoint communication system from a wireless communication device;

receiving audio from a user of the wireless communication device;

transmitting the audio from the wireless communication device before receiving an acknowledgement that the access request is granted and before receiving an acknowledgement that the access request is denied; and

terminating the audio transmission if a denial of the access request is received, wherein the audio includes speech.

36. The method of claim 35, wherein at least a portion of the audio transmission serves as the access request.

37. A method comprising:

transmitting a request for access to a broadcast link in a point-to-multipoint communication network from a wireless communication device to network equipment;
receiving audio from a user of the wireless communication device;
transmitting the audio from the wireless communication device to the network equipment before the access request is granted and before the access request is denied; and
terminating the audio transmission and discarding the transmitted audio if the access request is denied, wherein the audio includes speech.

38. A method comprising:

transmitting an access request from a wireless communication device to network equipment, the access request including a request for access to a broadcast link in a point-to-multipoint communication system;
receiving speech from a user of the wireless communication device;
transmitting the speech from the wireless communication device to the network equipment before the wireless communication device receives an acknowledgement from the network equipment that the access request is granted and before the wireless communication device receives an acknowledgement from the network equipment that the access request is denied; and
terminating the speech transmission from the wireless communication device to the network equipment in the event the access request is denied.

39. A method comprising:

transmitting a request for access to a broadcast link in a point-to-multipoint communication system;
transmitting audio from a wireless communication device before receiving an acknowledgement that the access request is granted and before receiving an acknowledgement that the access request is denied, wherein the audio includes speech; and
terminating the audio transmission in the event the access request is denied.

Application No: 10/034,776

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EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.